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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF : Edward A. Enyedy
FOR : **DRIVE ROLLERS FOR WIRE
FEEDING MECHANISM**
SERIAL NO. : 10/800,929
FILED : March 15, 2004
EXAMINER : Evan H. Langdon
ART UNIT : 3654
CONFIRMATION NO. : 9567
LAST OFFICE ACTION : July 22, 2005
ATTORNEY DOCKET NO. : LEE 2 00381

REPLY BRIEF UNDER 37 C.F.R. § 41.41

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
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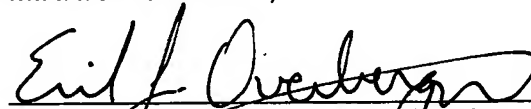
Dear Sir:

Applicant transmits herewith one (1) copy of REPLY BRIEF UNDER 37 C.F.R. 41.41 for the above-reference patent application.

The commissioner is authorized to charge Deposit Account No. 06-0308 for any fee deficiency.

Respectfully submitted,

FAY, SHARPE, FAGAN
MINNICH & McKEE, LLP

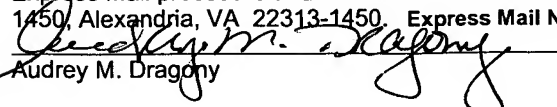

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Dated: May 5, 2006

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Audrey M. Dragon

Date: May 5, 2006



PATENT APPLICATION

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BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

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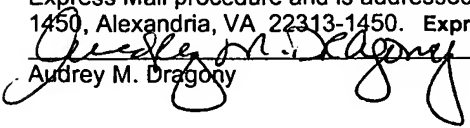
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Dear Sir:

Appellants reply as follows to the Examiner's Answer having a mail date of
March 7, 2006.

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Audrey M. Dragony

Date: May 5, 2006

A. Combination of Gilliland and Applicant's Figure 5 Remains Improper¹

1. Advantages of Gilliland FIG. 3B Fail to Support Motivation for Modifying Same Arrangement with Applicant's Figure 5

The subject patent application is directed to drive rollers used in wire feeding mechanisms for driveably advancing a welding wire. *See Application, page 1, lines 2-6 and Fig. 1.* Similarly, the independent claims (1, 6 and 14) at issue in this Appeal are directed to wire feeding mechanisms having drive rollers for advancing a wire. Using the terminology of Gilliland (U.S. Pat. No. 5,540,371), the Examiner's primary reference, Appellant's drive rollers would generally be considered "pusher" rollers because they are disposed in a wire feeding mechanism for pulling wire from a wire reel and pushing the wire into a wire guide. *See Gilliland, col. 1, lines 28-35.* Other rollers, such as those disposed near the arc to which wire is being supplied (e.g., rollers provided in a welding gun) for feeding wire to the arc welding operation would be referred to, according to Gilliland, as "puller" rollers. *Id.*

This background is important when considering the issue of whether proper motivation exists, and is evidenced, for supporting the combination of Applicant's Figure 5 with Gilliland. Particularly, the pusher-puller distinction is important because, to defend his combination of art/references, the Examiner cites Gilliland for the proposition that the use of two grooves provides more contact with a wire than a single groove and therefore minimizes the possibility of the rollers slipping on the wire while using the least amount of pressure to grip the wire. *Examiner's Answer at pages 9, 13 and 16 citing Gilliland at col. 6, lines 56-60.* On this basis, the Examiner concludes ("Therefore") that Gilliland discloses the advantages of using two grooves as opposed to one. *Examiner's Answer at pages 9, 13 and 16.*

What the Examiner has failed to mention is that Gilliland discloses these advantages as applicable in a "puller" roller arrangement. *See Gilliland at col. 6, lines 20-21* ("FIGS. 3A AND 3B are an illustration of the construction of the rollers of the

¹ At each of pages 8, 13 and 15 of the Examiner's Answer, the Examiner disingenuously states that "[t]he appellant makes an erroneous statement that the examiner asserts that there is no requirement that a motivation to make a modification be expressly articulated." Appellant points out that the statement was contained in the July 22, 2005, Advisory Action at about lines 10-11 in which the Advisory Action unequivocally puts forth that "there is no requirement that a motivation to make the modification be expressly articulated."

puller system.”). The Examiner has conveniently overlooked the statement of Gilliland following the recitation of the advantages of a two-roller, two-groove arrangement which indicates that “[t]he preferred implementation is to use one grooved roller, as shown in FIG. 2A, for the pusher rollers and to use two grooved rollers, as is shown in FIG. 3B, for the puller rollers.” *Id. at col. 6, lines 61-63*. Thus, Gilliland unambiguously prefers a one grooved roller – one flat roller arrangement for use in “pusher” roller applications, which would include Appellant’s wire feeding mechanism, despite the alleged advantage quoted by the Examiner of a two roller, two groove arrangement.

In view of the foregoing, Appellant respectfully asserts that one skilled in the art would not be motivated to modify the two-roller, two-groove arrangement of Gilliland FIG. 3B (preferred for use in “puller” applications) with the teachings of Applicant’s Figure 5 (a “pusher” application according to Gilliland) to come up with the invention of any of independent claims 1, 5 or 12 (each a “pusher” arrangement according to Gilliland). Moreover, Appellant further asserts that any advantages in Gilliland suggesting the use of the FIG. 3B two-roller, two-groove arrangement fail to support a motivation for modifying those same rollers with the teachings of the two-roller, one groove and one flat arrangement depicted in Figure 5.

2. Advantages of Applicant’s Figure 5 Over Prior Art Two Flat Roller Arrangement and Advantages of Claimed Invention(s) Fail to Support Motivation for Modifying Gilliland FIG. 3B with Applicant’s Figure 5

In a further attempt to support his addition of Applicant’s Figure 5 to Gilliland FIG. 3B, the Examiner indicates that “Applicant’s disclosure [at] page 3 lines 13-29 and Figure 5 teaches using an angle of 30-60 degrees [to] better grip the wire and further ‘lessen the amount a wire [is] deformed’, and that ‘reductions in the required compressive force are generally considered desirable and can decrease wear on the wire feed mechanism and/or reduce slippage of the wire relative to the drive rollers.’” *Examiner’s Answer at pages 9-10, 13 and 16*. The Examiner contends that this provides evidence that the combination is proper. *Id. at pages 10, 13 and 16*. Appellant disagrees for the reasons that follow.

First, nothing on page 3, lines 13-29, of Appellant’s Application indicates that the arrangement of Figure 5 uses an angle of 30-60 degrees *to better grip the wire*. This is

complete conjecture by the Examiner. Moreover, and even more definitively, absolutely nothing in these lines indicates that the arrangement of Figure 5 better grips the wire when compared to a two roller, two groove arrangement depicted in Figure 3B of Gilliland.

Second, the quotes from this section of the Application are unfairly taken out of context. Concerning the first quoted section (Figure 5 teaches using an angle of 30-60 degrees to "lessen the amount a wire is deformed"), the application does indeed state that the drive roller arrangement of Figure 5, showing one roller with a 60 degree groove and a second flat roller, tends to lessen the amount a wire is deformed. See *Application, page 3, lines 23-24*. However, this statement concerning lessening wire deformation relates to the remainder of the Application's background section, which indicates that the compressive forces associated with opposed flat-faced driver rollers (i.e., two roller, both without a groove) often cause a wire passing therebetween to deform. See *Application, page 2, lines 17-20*. Thus, the arrangement of Figure 5 is a modification of the prior art arrangement of two opposed flat rollers. This fails to evidence why one skilled in the art would be motivated to modify the two roller, two groove arrangement of Gilliland FIG. 3B. It is wholly irrelevant to the question of whether motivation exists for modifying Gilliland FIG. 3B with Application Figure 5 that the one grooved roller, one flat roller arrangement of Figure 5 tends to reduce deformation as compared to two flat rollers of the prior art.

Concerning the second quoted section ("reductions in the required compressive force are generally considered desirable and can decrease wear on the wire feed mechanism and/or reduce slippage of the wire relative to the drive rollers"), the Examiner has again conveniently removed the context in which this statement was made. More fully, the Application states:

While these types of groove arrangements tend to lessen the amount a wire is deformed, the amount of compressive force required to input motion to the wire remains high. ***Reductions in the required compressive force are generally considered desirable and can decrease wear on the wire feed mechanism and/or reduce slippage of the wire relative to the drive rollers.*** Accordingly, any improvements to the drive rollers that decreases the required compressive force needed to drive the wire engaged by the drive rollers is deemed desirable.

Application at page 3, lines 23-29, (emphasis added). When provided in full, this section clearly indicates that Figure 5 is a modification over the prior art two roller, both flat arrangement, but that further improvements to the arrangement in Figure 5 are considered desirable. The Application's indication that reductions in the required compressive force are generally considered desirable and can decrease wear on the wire feed mechanism and/or reduce slippage of the wire simply does not support or evidence why one skilled in the art would be motivated to modify the two roller, two groove arrangement of Gilliland FIG. 3B with Figure 5 of the Application.

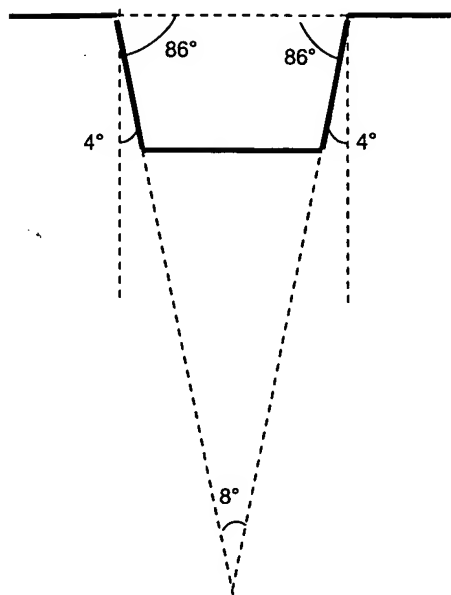
For the foregoing reasons, Appellant respectfully submits that the Examiner has failed to show any credible evidence as to why one skilled in the art would be motivated to modify Figure 3B of Gilliland with Applicant's Figure 5.

B. Teachings of Gilliland, Specifically Figure 3B of Gilliland, and Applicant's Figure 5 Remain Incongruent

In attempting to refute Appellant's argument that the teachings of Gilliland and Applicant's Figure 5 are incongruent, the Examiner misinterprets the structural characteristics of Figure 3B in Gilliland. More particularly, in several places in the Examiner's Answer, the Examiner correctly indicates that Gilliland discloses grooves with an inward taper of four degrees on each wall, but then incorrectly goes on to state that "modifying the angle [of Gilliland] to be greater than 30 degrees but less than ninety degrees as taught by the Applicant's Figure 5 would create a more acute angle than that which is disclosed by Gilliland." *Examiner's Answer at pages 10, 11, 14, and 17* (emphasis added). How such a statement supports the Examiner's position is unclear but, in any case, the statement appears to be erroneous.

With reference to the Figure below (modeled on Gilliland FIG. 3B), Appellant submits that the angle defined between the four (4) degree tapered walls of Gilliland is eight (8) degrees, a relatively small acute angle (i.e., an acute angle being an angle that is less than ninety degrees). Appellant challenges the Examiner's assertion that modifying an eight (8) degree angle to be greater than thirty (30) degrees but less than ninety (90) degrees would create a "more acute" angle. More accurately, opening up an eight (8) degree angle as suggested by the Examiner would create a less acute

angle because the angle would be increased toward the geometry of a right or an obtuse angle.



Notwithstanding the foregoing problem with the Examiner's statement(s) on angle acuteness, after each such statement about creating a more acute angle the Examiner states, without any further support or reasoning, that "[o]ne skilled in the art would reasonably be expected to combine the two teachings." See *Examiner's Answer at pages 10, 11, 14 and 17*. Even if the Examiner was correct (which Appellant argues that he is not) in stating that modifying the grooves of Gilliland Figure 3B to be both be like the single groove of Application Figure 5 would create a more acute angle, this does not tend to show (i.e., evidence) why one skilled in the art would modify the drive rollers of Figure 3B in Gilliland to be like the grooved drive roller in Figure 5 of the Application.

C. Examiner's Argument that One Skilled in the Art Would Recognize Modifications Needed to Combine Applicant's Figure 5 with Gilliland Figure 3B Misses the Point

The Examiner attacks Appellant's argument that modifying the drive rollers depicted in Figure 3B of Gilliland to have the groove depicted in Figure 5 of the subject application would lead to an inoperable arrangement (i.e., two drive rollers with grooves like those depicted in Applicant's Figure 5 would fail to advance a wire disposed

therebetween). See *Examiner's Answer* at pages 8, 12 and 15. Specifically, the Examiner states that one having ordinary skill in the art would recognize modifications that would inherently have to be made when applying the teachings of Figure 5 to Gilliland. *Id.* This is an unfair oversimplification of the issue and misses the point.

Appellant does not and need not address whether one skilled in the art conceivably could make an operable set of drive rollers capable of advancing a wire when modifying the drive rollers of Gilliland Figure 3B with the drive roller groove of roller 122 in Applicant's Figure 5. This presupposes that one skilled in the art would have looked to Applicant's Figure 5 to modify the drive rollers of Gilliland in the first place. Rather, Appellant argues that the need for such an additional modification (i.e., first Gilliland has to be combined with Applicant's Figure 5, then modifications have to be made to produce an operable set of drive rollers) evidences against the Examiner's contention that motivation to combine the references exists.

Appellant respectfully submits that the two-step modification proposed by the Examiner tends to teach away from or evidence against the existence of a motivation to modify the Figure 3B drive rollers of Gilliland with the drive roller groove arrangement of Applicant's Figure 5.

D. Gilliland Does Not Indicate Desired Configuration for Centerline to be between Rollers, even in Reference to Figure 3B

The Examiner asserts that Gilliland's desired configuration is for the centerline of the wire to be between the surfaces of the rollers. *Examiner's Answer* at pg. 10 and 15, both citing *Gilliland* at col. 6, lines 55-56. This is at least disingenuous, if not entirely incorrect. More accurately, Gilliland states that the grooves 34 and 35 of Figure 3B "may be constructed so that the center line of wire 11 is below the surface of roller 32B, below the surface of roller 32A, or between the surfaces of rollers 32A and 32B, as desired." *Gilliland* at col. 6, lines 53-56 (emphasis added). Thus, Gilliland expresses no preference for a wire to have its centerline between two drive rollers.

Moreover, Gilliland depicts one grooved roller, one flat roller arrangements in Figures 2A and 3A, in which the wire 11 has its center line beneath the outer surface of the roller in which the groove is defined. See *Gilliland* at col. 5, lines 37-40, and col. 6, lines 45-47. As already discussed hereinabove, Gilliland does express a preference for

the rollers ("pusher" rollers) of Figures 2A and 3A to be used in pusher applications (which would include wire feeder mechanisms).

Accordingly, Appellant respectfully submits that one skilled in the art would not be motivated to modify the "puller" rollers of Gilliland's Figure 3B with the groove configuration shown in Applicant's Figure 5 and to further modify the groove of Applicant's Figure 5 so that the centerline of a wire would be received between outer surfaces of opposed drive rollers. The need for this additional modification tends to teach away from or at least evidence against the existence of a motivation to combine Applicant's Figure 5 with the Figure 3B teachings of Gilliland.


E. Conclusion

For the foregoing reasons, together with those set forth in Appellant's Appeal Brief, Appellant respectfully submits that claims 1-20 are not anticipated or rendered obvious by the applied art and requests the Board of Appeals to reverse each rejection of the Examiner.

Respectfully submitted,

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Dated: May 5, 2006


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